PIT STOP

Ring in the new year—it's time to start seriously planning for 2006's hot rod project. Whether it's engine, drivetrain, chassis, body, theory, or parts sourcing, if you've got a hot rodding question or problem, this is the place to get it answered. I'll answer as many of your inquiries here as space permits. You can send me digital photos of the car, engine, or part that you're having trouble with, and if it's properly exposed, in focus, and at least 300 dpi at 4x4 inches or larger in size (bigger is always better), we may even publish them in the magazine. When e-mailing, don't forget to include your real first and last name (not screen name) and hometown or military unit, base, or ship in the message.

—MARLAN DAVIS

ROUGH IDLE

I recently purchased a '78 Corvette with an L48 350 engine. At idle I have a slight miss or flutter, and when I rev the engine up and the back two barrels of the carb open, it pops back through the carb. I have replaced the distributor cap and rotor and spark plugs and wires, and rebuilt the Rochester Quadrajet carb. I took a compression test and all cylinders were between 160 and 175 psi. In the midrange, the engine sounds and runs very well. Could I have a vacuum leak, a timing problem, or an internal engine problem? Am I overlooking something?

Rod Bunkers
Medford, MN

Assuming the basic tune-up—including spark plugs, ignition wires, ignition timing, and carburetor idle mixture, linkage adjustments, and secondary air-valve opening rate—is correct, there may be a vacuum leak or an internal engine problem.

Check for a possible vacuum leak by placing a shop towel over the carb airhorn with the engine running at idle. If the engine speeds up instead of trying to stall out, you have a vacuum leak. Nail down its location with the old squirt-can test. Fill a squirt can with about a 75 percent cleaning solvent and 25 percent auto-trans fluid mix. Squirt around the carb-to-manifold seal area, the intake-to-cylinder head gaskets, the intake-manifold end-seals, and each intake-manifold bolt hole. If the idle speed changes, you hear a sucking sound, or smoke comes out the exhaust, you've found the leak location.

If the squirt-can test doesn't do it, disconnect the vacuum hoses and plug the vacuum ports. If idle improves, one of the hoses (or one of the devices a hose leads to) is the culprit. Reconnect the hoses one at a time to find the problem. Mid-to-late '70s cars had lots of smog equipment but no computer, instead relying on mechanical switches and activators—all connected by miles of vacuum hoses. Often buying a spool of vacuum hose from the parts store and replacing all the ancient hoses works wonders on these old cars.

If there is no vacuum leak, check for an internal problem. Although unlikely (because it should have shown up on the compression test), there could be a burnt exhaust valve. It's easy to check: Place a sheet of paper against the exhaust-pipe tip with the engine running. If the paper gets sucked back against the pipe, you have one or more burnt valves.

What won't show up on a cranking-compression test is a bad cam lobe. Remove the valve covers and inspect the valvetrain with the engine running. Be sure the rockers are all moving an equal distance. If one rocker isn't moving, or moving less than the others, you have a valvetrain problem like a bent pushrod or a bad cam lobe. With the engine off, if you can push the heel of a rocker down against the valvespring, then that spring is worn out.

EFI FUEL PUMP WITH CARBURETOR

I'm 17 and I have an '89 Camaro. I plan on putting in a 350 or a 383 engine. The original engine was a fuel-injected 2.8L V-6. I plan on making the new V-8 engine carbureted, but the original fuel-pump is set up for fuel-injection. Is it possible to put a fuel-pressure regulator in the fuel line and keep the existing pump?

Mike Norton
Logan, IA

Yes, the existing pump can be used with a low-pressure (carbureted) fuel system provided you install an adjustable low-pressure bypass-type fuel regulator and run a return line back to the fuel tank. Available bypass-style fuel regulators include the Holley PN 12-803BP and BG Fuel Systems PN 17021. Be sure to plumb the fuel-pressure gauge between the carb and regulator (i.e., on the pressure side). The pump may make noise and run faster (which could shorten its service life), but it should work OK while it lasts.

The ability of the V-6 pump to flow sufficient volume to supply a high-powered carbureted V-8 is another matter. Since volume and pressure have an inverse relationship (a pressure decrease results in a volume increase, and vice versa), and you'll be lowering the fuel pump pressure from its 40-plus-psi EFI system pressure to around 6 psi with the carb, everything will probably work out OK, but better safe then sorry. I suggest you dummy up the entire fuel system, including feed lines, regulator, and return line to the tank, but instead of running fuel to the carburetor float bowls, dump the carb feed-lines into a gas can. Adjust the regulator for the proper carburetor fuel pressure. Weigh the container empty. Run the fuel system for one minute, then reweigh the container. Subtract the empty weight from the filled weight and you have the approximate weight of fuel the system can flow in 1 minute. Multiply that number by 60 to derive the weight of fuel the system can flow in 1 hour. It should be greater than required by your engine's horsepower level. On average, an automotive gas engine requires about 0.5 pounds of fuel per horsepower per hour. So if the engine makes 400 hp, it requires at least 400 x 0.5 = 200 pounds of fuel. Ideally you want a 25-50 percent safety margin.

SOURCES

BG FUEL SYSTEMS (BARRY GRANT INC.); Dahlonega, GA; 706/864-8544; www.barrygrant.com

HOLLEY PERFORMANCE PRODUCTS; Bowling Green, KY; 270/781-9741 (tech) or 800/HOLLEY-1 ext. 8530 (nearest dealer); www.holley.com